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'The bigger the better' – mothers' social networks and child nutrition in Andhra Pradesh

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Abstract

Objective: It is hypothesised that mothers' social networks can positively affect child nutrition through the sharing of health knowledge and other resources. The present study describes the composition of mothers' networks, examines their association with child nutrition, and assesses whether health knowledge is shared within networks.
Design and setting: Cross-sectional data for mothers of young children from Andhra Pradesh (south India) were combined with existing data from the Young Lives study, in which the mothers were participating ($n = 282$).
Results: The composition of social networks varied between urban and rural areas, with urban networks being larger, more female, more literate and with a greater proportion of members living outside the household and being non-family. There was a positive association between child's height-for-age *Z*-score and mother's network size and network literacy rate. The association with network literacy was stronger among the poorest households. Women commonly reported seeking or receiving health advice from network members.
Conclusion: Big and literate social networks are associated with better child nutrition, especially among the poor. The dissemination of health knowledge between network members is a plausible way in which social networks benefit child nutrition in India. Further research into the underlying mechanisms is necessary to inform the development of interventions that channel health information through word of mouth to the most excluded and vulnerable families.

Keywords
Child nutrition
Social networks
India
Health knowledge

Ten million children die each year, and malnutrition accounts for half of these deaths[1–3]. Over the past two decades a number of studies have attempted to comprehend the myriad of factors that affect child nutritional status in developing countries[4–11]. Their results show that child nutrition is associated with both family background[8,12] and the wider environment in which the child lives[13,14].

In India 62 million children are malnourished, corresponding to half of the country's child population[15,16]. A key determining factor of child malnutrition has been shown to be women's traditionally low status in society[17–19]. For biological and social reasons mothers in India and elsewhere play an important role in child care, and are often targeted by programmes aiming to improve their 'knowledge, attitudes and practices'. Unfortunately many of these programmes have failed to demonstrate any positive changes in behaviour[20]. Another attempt at changing mothers' health and care behaviour has been through television and radio. Unfortunately in India, as in many other parts of the developing world, a 'media underclass' has emerged, representing the large swathes of the population who do not have access to media nor the health messages transmitted through them[21]. Furthermore, improvements in 'knowledge' do not necessarily lead to changes in 'attitude' or 'practice'. These programmatic difficulties have led to a growing recognition that top-down dissemination of information is unlikely to change health and care behaviour, and that new forms of dialogue-oriented approaches are needed to encourage mothers to adopt practices such as exclusive breast-feeding, appropriate weaning and immunisation[22].

Social networks have been shown to be effective disseminators of knowledge and, crucially, this knowledge has led to positive changes in behaviours, for example in relation to family planning[23–27] and HIV/AIDS[21,28]. Research into the role of social networks for determining health behaviour has provided a general consensus that networks are useful for both 'social learning' and 'social influence'. Social learning refers to the increased acceptance of new approaches through the

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learning of the experiences of others, and social influence refers to the normative influences on behaviour, capturing the fact that preferences are affected by the attitudes and behaviours that prevail in the social environment[23,29,30]. There is also the belief that social networks facilitate the reciprocal exchange of resources, such as labour, credit and other productive assets[31,32].

Previous network research suggests that the composition of the network is important, such as the age, sex, literacy and relationship of network members. Heterogeneous networks, for example, where members have varied personal characteristics and live or work in a range of different environments, are more likely to provide their members with new and varied information compared with homogeneous close-knit networks[33]. Furthermore, the relationship between the individual and the network members is also important: in India the use of contraceptives among women declined with the proportion of network members who were conjugal kin, increased with the proportion of network members living outside the village, and was significantly elevated if the woman's mother was present in the network[34]. Moreover, the role of networks was found to be more pronounced for women older than 30 years than for younger women.

Although kinship systems and women's social networks have been widely studied for their role in determining fertility behaviour, only a couple of studies have examined their effect on child nutrition in developing countries. A study in South Africa found that living in a community with high group membership and informal associations buffered against the negative impact of household (HH) economic shocks on a child's height-for-age Z-score[35]. On the other hand, analysis of cross-sectional data from the Young Lives (YL) study in Ethiopia, Vietnam, Peru and India – a sub-sample of which is used for the present study – revealed few associations between child nutrition and mothers' structural social capital, such as formal group membership and citizenship activities[36]. However, in contrast to formal networks, the role of informal social networks remains largely unexplored as a means of improving child nutrition in developing countries.

Drawing on data from Andhra Pradesh, south India, the present paper has four objectives:

1. To describe the composition of mothers' social networks in terms of size, sex, relationship to mother, literacy and place of residence.
2. To examine the association between child nutrition and the characteristics of mothers' social networks.
3. To assess whether the associations between child nutrition and network characteristics vary according to mothers' age, education, wealth, caste and urban/rural residence.
4. To determine if women seek or receive health advice from network members, and if so, from whom.

Methods

A cross-sectional study was undertaken in 2004 of a sub-sample of mothers taking part in the YL study in Andhra Pradesh, for whom existing data on child nutrition and background variables were therefore available. The design of the YL study has been documented in detail elsewhere[37,38]. Of the 20 YL study sites in Andhra Pradesh, four were purposively selected to represent urban and rural areas – Hyderabad City (urban), Mahubnagar (rural), Anantapur District (rural) and Anantapur City (urban). Within each site, mothers were selected by using a stratified random sampling method. A sampling frame was developed by drawing up a list of all the eligible women per community within each site. Women were randomly chosen within each community and the number sampled per community was proportional to the number of women available for selection. Non-biological mothers and cases with missing identification were excluded, leaving 853 YL respondents eligible for selection. An estimated total sample size of 300 mothers was based on the number which was feasible to manage and possible within the study's budget.

Main variables

Data on social networks (referred to as 'networks' hereafter) were collected by asking mothers to name the individuals, within and outside their HH, whom they talk to the most. If the respondent said she does not talk to anyone or feel close to anyone, then no names were entered. Each entry would have an associated identification number. The field investigator established the sex of each network member, their relationship to the respondent (e.g. husband, mother, etc.), where they lived (same HH, other HH in same village/area, different village/area) and literacy (defined as ability to both read and write). The maximum number of 'main persons' allowed was six.

Apart from the numeric variable 'network size' (total number of network members), other network composition variables were developed to refer to the proportion of members with a certain characteristic. Variables were also created to represent the presence (yes/no) of key individuals in the network thought to have a special role in child care – the husband, mother and mother-in-law – and the proportion of total network size they represented (e.g. a mother will represent 50% of a network with two members). The main variables used in the analysis are listed in Fig. 1.

Data on seeking and receiving health advice were collected by asking mothers 'If your child falls sick, and the nurse/health worker is not available, who would you (actively) seek/(passively) receive advice from?' (only the main person was named). The field investigator would clarify the difference between actively seeking and

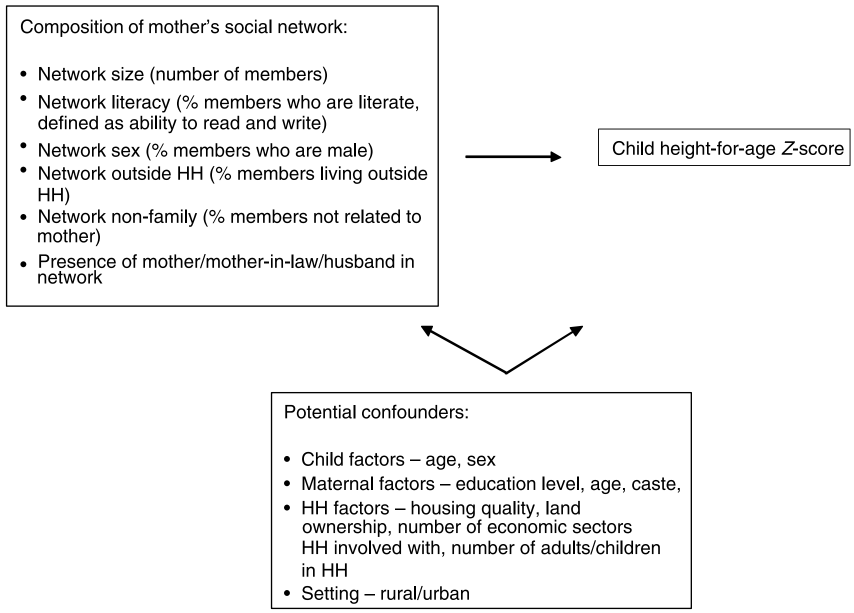

Fig. 1 Conceptual framework for the analysis (HH – household)

passively receiving advice. If the person named was a network member the appropriate identification number was noted. If the person was not a network member the field investigator would note the name, allocate a unique identification number to the person, and establish the sex, literacy, relationship and place of residence of the person.

Data on height and age were collected for each child, aged approximately 1 year in 2002 as part of the YL study, in order to produce height-for-age *Z*-scores following procedures recommended by the World Health Organization[39–41]. Height-for-age, an indicator of chronic malnutrition, was identified as the most appropriate nutritional outcome as it is hypothesised that the potential effect of social networks would operate over the longer term. Height-for-age *Z*-scores below -2 indicate 'stunting'. It should be noted that the data on child nutrition were collected two years previously to the data on their mothers' social networks. This poses a problem only if either variable changed significantly in that time period. However, we assume that this is unlikely, and that the relationship between the two variables would not therefore have been substantially affected by the differing dates of data collection. This assumption is supported by research showing that nutritional status at 12 months is a strong predictor of nutritional status at 24 and 47 months[9,42].

It is likely that several factors will confound the relationship between social networks and child nutrition. Potential confounders were identified for adjustment, as shown in Fig. 1. An important confounder is socio-economic status, which was captured through several variables, including housing quality and productive assets. Housing quality (a continuous score from 0 to 1) – a measure of wealth – was calculated as follows: first, by adding the number of people per room (capped at 1.5) with a point each for good-quality walls (brick or plaster), a sturdy roof (corrugated iron, tiles or concrete) and a floor made of a finished material (cement, tile or a laminated material); and second, by dividing this score by 4.5 in order to have a continuous variable from 0 to 1. Land ownership was used to capture HH natural physical capital and was measured using a binary variable (yes/no). The number of economic sectors was used to capture HH financial capital, and measured by counting the number of different economic sectors that the HH is involved with. The numbers of adults and children in the HH were used to capture HH providers and consumers, respectively (with an adult defined as anyone above 12 years of age). Mothers' education was measured as the highest level of schooling completed (primary, secondary or higher). The categories used for caste and setting are given in Table 1. Child age and sex were included in the regression model, as previous research suggests that these factors strongly affect height-for-age *Z*-scores[43].

Data preparation

The data were double-entered in Microsoft Access® and merged with YL data. The age, sex and names of each child were compared to ensure that the same mother and child were included, which led to the exclusion of nine cases. A further two cases were omitted because they were the sole observation per community (the Stata mixed-effects model requires more than one case per community in order to specify community as a random effect), and eight cases were omitted because they had missing values for at least one of the variables used in the analysis. Stata version 8 was used for all statistical analyses[44]. Out of the original 302, data on 279 women from 35 communities were analysed. For certain analyses a greater number of cases were available for inclusion, and analysis-specific sample sizes

Table 1 Pattern of network composition

	Size (n)			Literacy rate (%)			Outside HH (%)			Male (%)			Non-family (%)		
	n	Mean	P	n	Mean	P	n	Mean	P	n	Mean	P	n	Mean	P
Mother's age (years)															
< 20	30	2.67		30	32.17		30	30.94		30	56.33		29	8.74	
20–24	135	2.99		135	39.77		135	40.62		135	50.35		135	14.56	
25–29	88	3.09		88	43.60		88	36.44		88	53.30		87	14.90	
≥ 30	29	3.14	0.775	29	38.45	0.662	29	48.91	0.226	29	51.95	0.571	29	13.16	0.459
Setting															
Rural	187	2.82		187	32.93		187	35.29		187	56.51		196	10.01	
Urban	95	3.36	0.001	95	53.96	0.000	95	46.72	0.004	95	43.33	0.000	94	21.65	0.000
Housing (0–1)															
< 0.20	87	3.00		87	31.38		87	37.51		87	50.65		86	12.17	
0.20–0.39	85	2.94		85	36.06		85	45.14		85	52.14		84	14.90	
0.40–0.59	74	3.07		74	48.54		74	35.47		74	52.30		74	15.88	
≥ 0.60	36	3.00	0.622	36	52.73	0.000	36	36.44	0.603	36	54.86	0.349	36	11.76	0.676
Caste															
SC	49	2.67		49	36.77		49	38.91		49	55.31		48	15.69	
ST	19	2.79		19	20.96		19	45.79		19	56.49		18	3.89	
BC	151	2.95		151	37.84		151	37.14		151	53.00		151	14.79	
OC	63	3.43	0.012	63	53.52	0.002	63	42.09	0.583	63	45.98	0.168	63	13.33	0.205
Total	282	3.00		282	40.02		282	39.00		282	52.07		280	15.93	

HH – household; SC – scheduled caste; ST– scheduled tribe; BC – backward caste; OC – other caste.

have therefore been provided. This approach was undertaken to maximise the sample sizes available for each analysis step and assuming that these minor variations would not impact upon the comparability of the results.

Statistical analyses

For descriptive analysis we used χ^2 tests, Student's t-tests and F-tests to assess the statistical significance of differences between proportions, two means or more than two means, respectively. The Pearson correlation coefficient was used to assess the correlation between continuous network variables. Multivariable regression analysis was used to simultaneously adjust for multiple confounders. Interactions were assessed by including in the model a dummy interaction term. Statistical significance was assumed at the 10% level, although P-values between 0.05 and 0.10 are described as 'borderline'. The regression analysis was conducted in several ways to account for the potential effect of geographical clustering. The analysis was first conducted by specifying 'setting' (rural/urban) as 'fixed', meaning that the variable is assumed to be measured without error and that the values of the variable would be the same as in other studies. The results were then compared with models that additionally specified 'community' as 'random' and/or replaced the setting variable with 'site' ($n = 4$). The specification of community as random assumes that the values are drawn from a larger population of values and thus will represent them.

Results

Objective 1: Characteristics of mothers' networks

On average, mothers had networks of around three members (ranging from 0 to six), of whom 40% were literate, 52% were male, 39% were living outside the HH and 16% were non-family members. These variables – network size (n), network literacy rate (%), network sex (%), network non-family (%) and network outside HH (%) – were identified as the key variables for this analysis. Network composition is described in Table 1 in relation to background variables of interest: mothers' age, setting, housing quality and caste. Most variation was observed between rural and urban areas, with networks in urban areas being larger, more female, more literate, more non-family and including more people living outside the HH than networks in rural areas.

The patterns of network composition described above suggest that the variables are correlated with each other. Analysis showed that network size was positively correlated with the proportion of members living outside the HH ($r = 0.40$, $P < 0.001$) and the proportion being non-family ($r = 0.15$, $P < 0.012$), and negatively correlated with the proportion of network members being male ($r = -0.46$, $P < 0.001$). However, the correlation between network size and network literacy rate was only borderline significant ($r = 0.102$, $P = 0.087$).

Objective 2: Association between child nutrition and network characteristics

Around a quarter of children were classified as stunted (25.5%). Crude analysis suggested a positive relationship between child's height-for-age Z-score and mother's network size ($P = 0.001$) and network literacy rate ($P = 0.005$) (Table 2). Crude analysis also showed a negative relationship between child nutrition and the percentage of network members who were non-family ($P = 0.032$), while no relationship was found between child nutrition and the proportion of network members being male or living outside the HH.

The relationships shown to be statistically significant in the crude analysis were explored further by adjusting for potential confounders though multivariable regression analysis. The adjusted results (Table 3) showed that network size and network literacy rate remained positively associated with child nutrition ($\beta = 0.18$, $P = 0.007$ and $\beta = 0.57$, $P = 0.028$, respectively), and that the association with network non-family (%) was still weak and negative ($\beta = -0.01$, $P = 0.049$). The combined model (Model D), where all three indicators were included in the model, showed the same results. An increase in network size of one member was associated with an increase of 0.21 in height-for-age *Z*-score. Meanwhile, a 50% increase in network literacy rate was associated with an increase of 0.28 in *Z*-score.

Further analysis was conducted to assess the importance for child nutrition of their mothers having key individuals in their social network. The variables mother (yes/no), husband (yes/no) and mother-in-law (yes/no) were added separately, then combined, to Model A (Table 3), while dropping network size (n) due to collinearity. The results indicated that there was no effect of the presence of these individuals in the network (not shown). The analysis was repeated using the variables corresponding to the proportional representation of each of these individuals, while including the network size (n) variable. Again, the effects for these key individuals were all statistically non-significant (not shown).

Further analysis was undertaken to adjust for potential geographical clustering of observations, either between communities ($n = 31$) or between sites ($n = 4$). This was done first by specifying 'community' as a random effect for Models A to D and comparing the results with the original models which did not account for within-community clustering. The results showed that there was no observable difference in the association between nutrition and network size (n) ($\beta = 0.21$, $P = 0.002$), network literacy rate (%) ($\beta = 0.54$, $P = 0.028$) or network non-family (%) ($\beta = -0.01$, $P = 0.02$). Second, analysis was also undertaken to explore the role of clustering within 'sites'. Because two of the sites were urban and two rural, the inclusion of the 'site' variable into Models A to D meant that 'setting' was deliberately excluded to avoid collinearity. The results again showed no change in effect size of the main explanatory variables compared with the original models (not shown). These findings suggest that geographical clustering does not affect the results of this analysis.

Husband's education is often used in research to represent HH socio-economic status. So far it has been deliberately excluded from the analysis for concern of collinearity with network literacy rate (%), as husbands are commonly reported to be network members. To assess whether husband's education acts as a confounder it was added to Models A to D. The results showed that there was no observable difference in the effect of network size (n) ($\beta = 0.22$, $P = 0.002$), network literacy rate (%) ($\beta = 0.56$, $P = 0.050$) or network non-family (%) ($\beta = -0.01$, $P = 0.025$).

Objective 3: Interactions

It is plausible that the strength of the relationship between network characteristics and child nutrition is modified by other factors. Analysis was conducted to assess whether the association between three network characteristics – the size, literacy and proportion non-family – varied by five background variables: mother's age, education, caste, wealth and setting, by adding interaction terms to Model D. Of the 15 interactions examined, only two were found to be statistically significant and hence justifying stratification (results not shown). First, there was a positive interaction between network size and mother's age ($P = 0.093$). Stratification was undertaken by running Model D for each age group category, with the results indicating that only children of mothers younger than 25 years old were unaffected by network size. This is possibly because very young mothers are limited in their opportunity to develop networks (see Table 1), leading to a lack of sufficient variability in network size within this subgroup to detect a positive effect of larger network size. The second interaction was a negative one between HH wealth and network literacy rate ($P = 0.088$). Again, Model D was run for each category of HH wealth, with the results showing that only among the poorest of the poor (housing quality score < 0.20) was there a statistically significant association with network literacy.

Objective 4: Seeking and receiving health advice

Analysis was undertaken to assess the type of network and non-network persons from whom mothers seek or receive

Table 2 Crude association between child height-for-age *Z*-score and network composition ($n = 282$)

	Size (n)			Literacy rate (%)			Outside HH (%)			Male (%)			Non-family (%)		
	n	Mean	P	n	Mean	P	n	Mean	P	n	Mean	P	n	Mean	P
Height-for-age *Z*-score															
< -2	113	2.68		113	33.70		113	37.01		113	53.63		112	16.80	
-2 to -1	96	3.20		96	37.71		96	41.68		96	50.83		96	13.09	
> -1	73	3.23	0.041	73	52.83	0.002	73	39.09	0.901	73	51.28	0.278	72	10.53	0.034

HH – household.

Table 3 Regression output: adjusted association between mother's network characteristics and child's height-for-age *Z*-score ($n = 280$)

	Model A			Model B			Model C			Model D		
	β	SE	*P*	β	SE	*P*	β	SE	*P*	β	SE	*P*
Network size (*n*)	0.18	0.07	0.007							0.21	0.07	0.002
Network literacy rate (%)				0.57	0.26	0.028				0.56	0.25	0.026
Network non-family (%)							−0.01	0.00	0.049	−0.01	0.00	0.019
Mother's education*												
Primary	0.62	0.29	0.033	0.59	0.29	0.046	0.65	0.29	0.024	0.49	0.28	0.088
Secondary	0.08	0.30	0.791	−0.03	0.31	0.915	0.04	0.30	0.904	−0.03	0.30	0.930
Higher	0.04	0.27	0.874	−0.02	0.27	0.938	0.07	0.26	0.790	−0.16	0.27	0.553
Mother's age (years)	0.04	0.02	0.088	0.03	0.02	0.129	0.03	0.02	0.170	0.03	0.02	0.194
House quality (0–1)	0.72	0.38	0.059	0.58	0.38	0.129	0.47	0.38	0.215	0.52	0.37	0.169
Own land (0 = no, 1 = yes)	−0.29	0.26	0.267	−0.23	0.26	0.377	−0.26	0.26	0.326	−0.40	0.26	0.122
HH children (*n*)	−0.15	0.13	0.253	−0.21	0.14	0.131	−0.18	0.13	0.168	−0.19	0.13	0.154
HH adults (*n*)	−0.24	0.10	0.019	−0.20	0.10	0.049	−0.23	0.10	0.027	−0.18	0.10	0.080
Economic sectors (*n*)	0.05	0.04	0.231	0.06	0.04	0.127	0.06	0.04	0.142	0.04	0.04	0.309
Mother's caste†												
ST	−0.36	0.37	0.331	−0.25	0.38	0.501	−0.18	0.38	0.637	−0.23	0.38	0.549
BC	0.05	0.24	0.840	0.10	0.24	0.670	0.16	0.24	0.488	0.13	0.23	0.562
OC	0.12	0.29	0.676	0.21	0.29	0.464	0.28	0.29	0.334	0.16	0.28	0.563
Child's age (months)	−0.11	0.02	0.000	−0.12	0.02	0.000	−0.10	0.02	0.000	−0.10	0.02	0.000
Child's sex (1 = male, 0 = female)	−0.14	0.16	0.384	−0.15	0.17	0.377	−0.20	0.17	0.221	−0.24	0.16	0.143
Setting (1 = urban, 0 = rural)	−0.53	0.30	0.076	−0.44	0.29	0.137	−0.21	0.29	0.482	−0.47	0.29	0.111
Constant	−0.98	0.68	0.151	−0.52	0.66	0.429	−0.33	0.66	0.622	−0.83	0.66	0.211

SE – standard error; HH – household; ST– scheduled tribe; BC – backward caste; OC – other caste.
* Reference category: no education.
† Reference category: SC (scheduled caste).

health advice. The respondent was asked to name the main individual whom they (actively) seek or (passively) receive health advice from if their child is sick and no nurse or health worker is available. The results revealed that a larger proportion of women seek and receive advice from individuals within the network. Among women who were able to name a person 72% (134 out of 186) sought advice from at least one network member and 83% (174 out of 211) received advice from at least one network member.

Discussion

This study was undertaken to explore the hypothesis that mothers' network composition determines their children's nutritional status. Despite the small sample size of the study, the results demonstrate a positive association between height-for-age *Z*-score and network size and literacy rate, and that these associations are stronger among certain subgroups of women. The findings suggest that mothers' health behaviour may be influenced by the within-network sharing of information, support and resources, which in turn can benefit child nutrition. Although causal pathways have not been directly examined here, this assertion is nevertheless highly plausible for the following reasons. First, women themselves reported to both receive and seek health advice from network members. Second, previous studies have demonstrated the important role that mothers' mothers and mothers-in-law, and other common network members, play in child care[45–49], suggesting that women with large networks have greater access to varied advice and support than those with small networks. Third, there is overwhelming evidence for the beneficial impacts of adult education on child health and nutrition[50–54]. The positive association between child nutrition and mothers' network literacy rate thus implies that these 'key individuals' are either directly involved in child care or strongly influence a mother's child-care decisions.

Urban networks were found to be larger and contain a greater proportion of females, literates, non-family members and people living outside the HH. The larger the network, the greater was the proportion of female vs. male members. These patterns may be explained by the tendency for urban women to take up outside employment, more so than rural women, and thereby foster new links with people – largely other women – whom they would otherwise not have met. The urban environment can be new and daunting to first-generation migrants who need as much help as they can get in order to safeguard a livelihood and the health of their family. It is conceivable that women deliberately foster new non-family networks to build safety nets and improve their ability to manipulate critical aspects of the modern world. Further research is necessary to disentangle the role of non-family support as a way of coping with the absence of family support vs. a deliberate and opportunistic response to a new environment.

The statistical interactions observed may help us identify subgroups that are specifically reliant on networks. First, the association between nutrition and network size was found to be stronger for women older than 25 years than for younger women. One may speculate that older women are less dependent on their husbands and mother-in-laws and have more self-esteem and knowledge as a consequence of maturity, enabling them to draw support from a wider network. Second, the association with network literacy was found to be stronger among the poorest HHs than the less poor. This may suggest that network literacy acts as a substitute for HH wealth, with the poorest having more to gain from connections with educated others. Taking this one step further, and assuming that the relationship between networks and nutrition is causal, this may suggest that poverty's negative impacts may be compensated by network literacy. It is noteworthy that no effect modification was observed by the 'setting' variable, suggesting that there is no statistically significant difference between rural and urban areas in the effect of network characteristics on child nutrition in this sample. Nor was an effect detected of the presence of specific network members (such as husbands, mothers and mothers-in-law). As these effects were plausible, the lack of observable effects may be explained by the small sample size of the study, which limits the detection of weaker relationships.

Before assessing the research and policy implications of these findings, it is worth drawing attention to the three main limitations of the study. First, it is a cross-sectional study which means that causal effects cannot be established, only postulated. Second, the sample size is small which means it is difficult to detect weak effects. Third, the timing difference in the collection of data on child anthropometry and network characteristics may lead to unknown confounding if mothers of malnourished children deliberately set out to expand their networks. Other confounders, which have not been controlled for in the analysis, are probably also exerting an effect on the relationship between network composition and nutrition. For example, socio-cultural norms or power relationships between genders and generations may be independently correlated with network size and child nutrition. Unfortunately, it is not possible to ascertain the extent to which the study captures the 'true' effect of network composition, so it is important to refer to previous literature to assess the plausibility of the findings.

Further research is necessary to replicate these findings and shed light on underlying mechanisms, perhaps through more advanced 'social networks analysis' that assesses the quality of relationships, network structure and the resources embedded in these structures[55,56]. If supported by further evidence, the findings presented here call for a less individualistic approach to the understanding and combating of child malnutrition. Only targeting women of reproductive age, which is common for many mother-and-child health programmes, may overlook other actors who influence health-related decision-making and practices[46,57]. The findings may also suggest that the dissemination of health knowledge between network members may be an effective way in which social networks benefit child nutrition. Additional research would be needed to inform the development of health promotion interventions that use word of mouth to channel information to the most excluded and vulnerable families.

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